

Claims

1. Surgical device for removing tissue cells from a biological structure, comprising a fluid jet device for generating a fluid jet capable of separation and a suction device for suctioning off separated tissue cells and the injected fluid, as well as an operating handpiece (1) connected with the fluid jet device and the suction device, wherein

- the operating handpiece (1) comprises an outer suction tube (2) and an inner injection cannula (5) extending through the suction tube (2), the outer suction tube (2) and the inner injection cannula (5) forming therebetween an annular suction channel,
- the suction tube (2) includes one or more rows of radial suction openings (4), and
- the distal end of the injection cannula (5) is closed by a conical tip (7) and the surface of the conical tip includes a nozzle slit (8) that forms a flat jet,
characterized in that the nozzle slit (8) is inclined by an angle (α) with respect to the axial plane of the injection cannula (5), with the angle (α) being selected so that a flat fluid jet (9) with at least one separation tip (10) and, on one hand, a first separation edge (11) and, on the other hand, a second separation edge (12), as well and a peeling surface (13) is formed.

2. The surgical device of claim 1,

characterized in that the angle (α) is formed towards the conical tip (7) and the nozzle slit (8) extends from the cone edge of the cone diameter to one of the two visible edges of the conical tip (7).

3. The surgical device of claim 2,

characterized in that the nozzle slit (8) is V-shaped and forms an angled, flat fluid jet (9).

4. The surgical device of claim 1,

characterized in that the angle (α) is formed in a direction opposite to the conical tip (7) and the nozzle slit (8) extends parallel to at least one of the two visible edges of the conical tip (7).

5. The surgical device of claim 4,

characterized in that the nozzle slit (8) is V-shaped and forms an angled fluid jet (9).

6. The surgical device of claim 1,

characterized in that at least two separate nozzle jets (8) are arranged on the surface of the conical tip (7), which produce diverging flat fluid jets (9), which together assumed the shape of an impeller.

7. The surgical device according to one or more of claims 1 to 6,

characterized in that the suction tube (2) has as many rows of suction openings (4) as there are peeling surfaces (13), and that each row of suction openings is oriented towards the side of the peeling surface (13) and the location of at least one of the separation tips (10).